No. 200100169

THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

Svalöf Weibull AB

Whereas, THERE HAS BEEN PRESENTED TO THE

Secretary of Agriculture

AN APPLICATION REQUESTING A CERTIFICATE OF PROTECTION FOR AN ALLEGED DISTINCT VARIETY OF SEXUALLY REPRODUCED, OR TUBER PROPAGATED PLANT, THE NAME AND DESCRIPTION OF WHICH ARE CONTAINED IN THE APPLICATION AND EXHIBITS, A COPY OF WHICH IS HEREUNTO ANNEXED AND MADE A PART HEREOF, AND THE VARIOUS REQUIREMENTS OF LAW IN SUCH CASES MADE AND PROVIDED HAVE BEEN COMPLIED WITH, AND THE TITLE THERETO IS, FROM THE RECORDS OF THE PLANT VARIETY PROTECTION OFFICE, IN THE APPLICANT(S) INDICATED IN THE SAID COPY, AND WHEREAS, UPON DUE EXAMINATION MADE, THE SAID APPLICANT(S) IS (ARE) ADJUDGED TO BE ENTITLED TO A CERTIFICATE OF PLANT VARIETY PROTECTION UNDER THE LAW.

NOW, THEREFORE, THIS CERTIFICATE OF PLANT VARIETY PROTECTION IS TO GRANT UNTO THE SAID APPLICANT(S) AND THE SUCCESSORS, HEIRS OR ASSIGNS OF THE SAID APPLICANT(S) FOR THE TERM OF TWENTY YEARS FROM THE DATE OF THIS GRANT, SUBJECT TO THE PAYMENT OF THE REQUIRED FEES AND PERIODIC REPLENISHMENT OF VIABLE BASIC SEED OF THE VARIETY IN A PUBLIC REPOSITORY AS PROVIDED BY LAW, THE RIGHT TO EXCLUDE OTHERS FROM SELLING THE VARIETY, OR OFFERING IT FOR SALE, OR REPRODUCING IT, OR IMPORTING IT, OR EXPORTING IT, OR CONDITIONING IT FOR PROPAGATION, OR STOCKING IT FOR ANY OF THE ABOVE PURPOSE , OR USING IT IN PRODUCING A HYBRID OR DIFFERENT VARIETY THEREFROM, TO THE EXTENT PROVIDED BY THE PLANT VARIETY PROTECTION ACT. IN THE UNITED STATES SEED OF THIS VARIETY (1) SHALL BE SOLD BY VARIETY NAME ONLY AS A CLASS OF CERTIFIED SEED AND (2) SHALL CONFORM TO THE NUMBER OF GENERATIONS SPECIFIED BY THE OWNER OF RIGHTS. (84 STAT. 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

PEA, FIELD

'SW Midas'

In Testimony Whereof, I have hereunto set my hand and caused the seal of the Plant Variety Protection Office to be affixed at the City of Washington, D.C. this thirteenth day of December, in the year two thousand two.

Attest:

Acting Commissioner
Plant Variety Protection Office
Agricultural Marketing Service

Secretary of Agriculture

Form Approved - OMB No. 0581-005

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
SCIENCE AND TECHNOLOGY - PLANT VARIETY PROTECTION OFFICE

APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE

(Instructions and information collection burden statement on reverse)

The following statements are made in accordance with the Privacy Act of 1974 (5 U.S.C. 552a) and the Paperwork Reduction Act (PRA) of 1995.

Application is required in order to determine if a plant variety protection certificate is to be issued (7 U.S.C. 2421). Information is held confidential until certificate is issued (7 U.S.C. 2426).

1. NAME OF OWNER
SVALOF WEIBULL AB

2. TEMPORARY DESIGNATION OR EXPERIMENTAL NAME
SW 975539

3. VARIETY NAME
SW MIDAS

4. ADDRESS *(Street and No., or R.F.D. No., City, State, and ZIP Code, and Country)*
S-268 81
SVALOV, SWEDEN

5. TELEPHONE *(Include area code)*
46-418-667000

6. FAX *(Include area code)*
46-418-667100

FOR OFFICIAL USE ONLY

PVPO NUMBER
200100169

FILING DATE
April 19, 2001

7. IF THE OWNER NAMED IS NOT A "PERSON", GIVE FORM OF ORGANIZATION *(corporation, partnership, association, etc.)*
CORPORATION

8. IF INCORPORATED, GIVE STATE OF INCORPORATION
SWEDEN

9. DATE OF INCORPORATION
1993

10. NAME AND ADDRESS OF OWNER REPRESENTATIVE(S) TO SERVE IN THIS APPLICATION. *(First person listed will receive all papers)*
SVALOF WEIBULL LTD.
2-411 DOWNEY RD.
SASKATOON, SK.
CANADA S7N 4L8

FEES RECEIVED

FILING AND EXAMINATION FEES:
$ 2705.00
DATE 4/19/01

CERTIFICATION FEE:
$ 320.00
DATE 5/22/02

11. TELEPHONE *(Include area code)*
306-477-5230

12. FAX *(Include area code)*
306-477-5239

13. E-MAIL
howard.love@swseed.se

14. CROP KIND *(Common Name)*
Pisum sativum (Field pea)

18. CHECK APPROPRIATE BOX FOR EACH ATTACHMENT SUBMITTED (Follow instructions on reverse)

- a. ☒ Exhibit A. Origin and Breeding History of the Variety
- b. ☒ Exhibit B. Statement of Distinctness
- c. ☒ Exhibit C. Objective Description of Variety
- d. ☒ Exhibit D. Additional Description of the Variety *(Optional)*
- e. ☒ Exhibit E. Statement of the Basis of the Owner's Ownership
- f. ☒ Voucher Sample *(2,500 viable untreated seeds or, for tuber propagated varieties, verification that tissue culture will be deposited and maintained in an approved public repository)*
- g. ☒ Filing and Examination Fee ($2,705), made payable to "Treasurer of the United States" *(Mail to the Plant Variety Protection Office)*

19. DOES THE OWNER SPECIFY THAT SEED OF THIS VARIETY BE SOLD AS A CLASS OF CERTIFIED SEED? *See Section 83(a) of the Plant Variety Protection Act)*
☒ YES *(If "yes", answer items 20 and 21 below)* ☐ NO *(If "no," go to item 22)*

20. DOES THE OWNER SPECIFY THAT SEED OF THIS VARIETY BE LIMITED AS TO NUMBER OF CLASSES? ☒ YES ☐ NO
IF YES, WHICH CLASSES? ☒ FOUNDATION ☒ REGISTERED ☒ CERTIFIED

21. DOES THE OWNER SPECIFY THAT THE CLASSES BE LIMITED AS TO NUMBER OF GENERATIONS? ☒ YES ☐ NO
IF YES, SPECIFY THE NUMBER 1, 2, 3, *etc.* 3 FOUNDATION 2 REGISTERED 1 CERTIFIED

(If additional explanation is necessary, please use the space indicated on the reverse.)

22. HAS THE VARIETY (INCLUDING ANY HARVESTED MATERIAL) OR A HYBRID PRODUCED FROM THIS VARIETY BEEN SOLD, DISPOSED OF, TRANSFERRED, OR USED IN THE U. S. OR OTHER COUNTRIES?
☐ YES ☒ NO
IF YES, YOU MUST PROVIDE THE DATE OF FIRST SALE, DISPOSITION, TRANSFER, OR USE FOR EACH COUNTRY AND THE CIRCUMSTANCES. *(Please use space indicated on reverse.)*

23. IS THE VARIETY OR ANY COMPONENT OF THE VARIETY PROTECTED BY INTELLECTUAL PROPERTY RIGHT *(PLANT BREEDER'S RIGHT OR PATENT)*?
☐ YES ☒ NO
IF YES, GIVE COUNTRY, DATE OF FILING OR ISSUANCE AND ASSIGNED REFERENCE NUMBER. *(Please use space indicated on reverse.)*

24. The owners declare that a viable sample of basic seed of the variety will be furnished with application and will be replenished upon request in accordance with such regulations as may be applicable, or for a tuber propagated variety a tissue culture will be deposited in a public repository and maintained for the duration of the certificate.

The undersigned owner(s) is(are) the owner of this sexually reproduced or tuber propagated plant variety, and believe(s) that the variety is new, distinct, uniform, and stable as required in Section 42, and is entitled to protection under the provisions of Section 42 of the Plant Variety Protection Act.

Owner(s) is(are) informed that false representation herein can jeopardize protection and result in penalties.

SIGNATURE OF OWNER		SIGNATURE OF OWNER	
Howard K. Love			
NAME *(Please print or type)*		NAME *(Please print or type)*	
DR. HOWARD K. LOVE			
CAPACITY OR TITLE	DATE	CAPACITY OR TITLE	DATE
CDN. RESEARCH DIRECTOR, V.P.	April 17/01		

INSTRUCTIONS

200100169

GENERAL: To be effectively filed with the Plant Variety Protection Office (PVPO), ALL of the following items must be **received** in the PVPO: (1) Completed application form signed by the owner; (2) completed exhibits A, B, C, E; (3) for a seed reproduced variety at least 2,500 viable untreated seeds, for a hybrid variety at least 2,500 untreated seeds of each line necessary to **reproduce** the variety, or for tuber reproduced varieties verification that a viable *(in the sense that it will reproduce an entire plant)* tissue culture will be deposited and maintained in an approved public repository; (4) check drawn on a U.S. bank for $2,705 ($320 filing fee and $2,385 examination fee), payable to "Treasurer of the United States" *(See Section 97.6 of the Regulations and Rules of Practice.)* Partial applications will be held in the PVPO for not more than 90 days, then returned to the applicant as unfiled. Mail application and other requirements to Plant Variety Protection Office, AMS, USDA, Room 500, NAL Building, 10301 Baltimore Avenue, Beltsville, MD 20705-2351. Retain one copy for your files. All items on the face of the application are self explanatory unless noted below. Corrections on the application form and exhibits must be initialed and dated. **DO NOT** use masking materials to make corrections. If a certificate is allowed, you will be requested to send a check payable to "Treasurer of the United States" in the amount of $320 for issuance of the certificate. Certificates will be issued to owner, not licensee or agent.

'01 APR 19 P12:50

Plant Variety Protection Office
Telephone: (301) 504-5518
FAX: (301) 504-5291
Homepage: http://www.ams.usda.gov/science/pvp.htm

ITEM

8a. Give:
(1) the genealogy, including public and commercial varieties, lines, or clones used, and the breeding method;
(2) the details of subsequent stages of selection and multiplication;
(3) evidence of uniformity and stability; and
(4) the type and frequency of variants during reproduction and multiplication and state how these variants may be identified

8b. Give a summary of the variety's distinctness. Clearly state how this application variety may be distinguished from all other varieties in the same crop. If the new variety is most similar to one variety or a group of related varieties:

(1) identify these varieties and state all differences objectively;
(2) attach statistical data for characters expressed numerically and demonstrate that these are clear differences; and
(3) submit, if helpful, seed and plant specimens or photographs (prints) of seed and plant comparisons which clearly indicate distinctness.

8c. Exhibit C forms are available from the PVPO Office for most crops; specify crop kind. Fill in Exhibit C (Objective Description of Variety) form as completely as possible to describe your variety.

8d. Optional additional characteristics and/or photographs. Describe any additional characteristics that cannot be accurately conveyed in Exhibit C. Use comparative varieties as is necessary to reveal more accurately the characteristics that are difficult to describe, such as plant habit, plant color, disease resistance, *etc.*

8e. Section 52(5) of the Act requires applicants to furnish a statement of the basis of the applicant's ownership. An Exhibit E form is available from the PVPO.

9. If "Yes" is specified *(seed of this variety be sold by variety name only, as a class of certified seed)*, the applicant **MAY NOT** reverse this affirmative decision after the variety has been sold and so labeled, the decision published, or the certificate issued. However, if "No" has been specified, the applicant may change the choice. *(See Regulations and Rules of Practice, Section 97.103).*

1. *See Section 83 of the Act for the Contents and Term of Plant Variety Protection.*

2. *See Sections 41, 42, and 43 of the Act and Section 97.5 of the regulations for eligibility requirements.*

3. *See Section 5.5 of the Act for instructions on claiming the benefit of an earlier filing date.*

1. CONTINUED FROM FRONT *(Please provide a statement as to the limitation and sequence of generations that may be certified.)*

2. CONTINUED FROM FRONT *(Please provide the date of first sale, disposition, transfer, or use for each country and the circumstances, if the variety including any harvested material) or a hybrid produced from this variety has been sold, disposed of, transferred, or used in the U.S. or other countries.)*

3. CONTINUED FROM FRONT *(Please give the country, date of filing or issuance, and assigned reference number, if the variety or any component of the variety is protected by intellectual property right (Plant Breeder's Right or Patent).)*

NOTES: It is the responsibility of the applicant/owner to keep the PVPO informed of any changes of address or change of ownership or assignment or owner's representative during the life of the application/certificate. There is no charge for filing a change of address. The fee for filing a change of ownership or assignment or any modification of owner's name is specified in Section 97.175 of the regulations. *(See Section 101 of the Act, and Sections 97.130, 97.131, 97.175(h) of the Regulations and Rules of Practice.)*

To avoid conflict with other variety names in use, the applicant must check the variety names proposed by contacting: Seed Branch, AMS, USDA, Room 213, Building 306, Beltsville Agricultural Research Center--East, Beltsville, MD 20705. Telephone: (301) 504-8089.

200100169

April 10, 2001

CONFIDENTIAL

VARIETY " SW MIDAS" expt. designation: SW 975539

Origin and Breeding:

SW 975539 comes from the cross (M 1324 x SW Carneval).
The original cross was made in 1994 using the pedigree method.

'M1324' = 'Carneval' x 'Narva'

MAH
4-16-2002

Prepared by:

Howard K. Love

Howard K. Love, Plant Breeder
Svalof Weibull Ltd.

Variety: SW MIDAS (SW 975539) Field Pea

Exhibit A: Origin and Breeding History of the Variety

SW MIDAS was developed by Svalof Weibull AB, Svalov, Sweden. This semi-leafless variety originates from the cross(see confidential information package). The original cross was done in 1994. The breeding method was a pedigreed method and the variety originates from a single plant selection in the F_5. Selection was made for yield, semi-leafless trait, earliness, straw stiffness, good yellow colour and good tendrils. Breeder seed was bulked in the F_8 generation.

Statement of Uniformity and Stability

SW MIDAS is uniform and stable. No offtypes. Observed for more than two growing seasons for comparisons and stability.

Uniformity and stability have been observed over four generations.

No variants were observed.

Methods of maintaining the variety.

SW MIDAS is maintained from breeder seed. Breeder seed will be maintained by Svalöf Weibull AB, Sweden and Svalof Weibull Ltd. Saskatoon, SK, Canada.

Variety: SW MIDAS (SW 975539) Field Pea

Exhibit B: Statement of Distinctness

SW MIDAS is a distinct variety, possible to distinguish from Carneval and Majoret which are the most similar varieties known to us. **SW MIDAS** differs from Majoret by having yellow seed and a blunt pod. **SW MIDAS** differs from Carneval by being 2 days earlier to maturity and being powdery mildew resistant.

SW MIDAS differs from Majoret by having yellow seed and a blunt pod whereas Majoret has a pointed pod and green seed. SW MIDAS differs from Carneval by having the er-1 gene for powdery mildew resistance whereas Carneval lacks the er-1 gene

FORM APPROVED: OMB NO. 0581-0055

UNITED STATES DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
Science Division
NATIONAL AGRICULTURAL LIBRARY
BELTSVILLE, MARYLAND 20705

EXHIBIT C
(Pea)

OBJECTIVE DESCRIPTION OF VARIETY
PEA *(PISUM SATIVUM)*

NAME OF APPLICANT(S)
SVALÖF WEIBULL AB

ADDRESS (Street and No. or R.F.D. No., City, State, and ZIP Code)
S-268 81
SVALOV, SWEDEN

VARIETY NAME OR TEMPORARY DESIGNATION
SW MIDAS (SW 975539)

FOR OFFICIAL USE ONLY

PVPO NUMBER
200100169

Place the appropriate number that describes the varietal character in the boxes below.
Place a zero in first box (e.g. [0][8][9] or [0][9]) when number is either 99 or less or 9 or less.

1. TYPE:

[2] 1 = GARDEN 2 = FIELD 3 = EDIBLE-PODDED

2. MATURITY:

[15] Node number of first bloom: [ ][ ][ ] No. of days to processing [ ][ ][ ][ ] Heat Units

[ ][2] No. of days *Earlier* than Carneval [ ] 1 = ALASKA WR 2 = THOMAS LAXTON WR 3 = LITTLE MARVEL

[ ][ ] No. of days *Later* than . . . . [ ] 4 = WANDO 5 = ALDERMAN WR 6 = AUSTRIAN WINTER

3. PLANT HEIGHT:

[ ][7][8] CM. HIGH - Similar to Majoret

[1][0] Cm. *Shorter* than Carneval. [ ] 1 = ALASKA WR 2 = THOMAS LAXTON WR 3 = LITTLE MARVEL

[ ][ ] Cm. *Taller* than . . . . . [ ] 4 = WANDO 5 = ALDERMAN WR 6 = AUSTRIAN WINTER

4. VINE:

[2] Habit: 1 = DETERMINATE 2 = INDETERMINATE [ ] Stockiness: 1 = SLIM (Alaska) 2 = MEDIUM (Thomas Laxton WR) 3 = HEAVY (Alderman)

[1] Branching: 1 = NONE (Alaska) 2 - 1–2 BRANCHES (Little Marvel) 3 = MORE THAN 2 BRANCHES (Dwarf Gray Sugar)

[1] Internodes: 1 = STRAIGHT 2 = ZIG ZAG [ ][ ] NUMBER OF NODES

5. LEAFLETS: not present

[ ] Color: 1 = LIGHT GREEN (Alaska WR) 2 = MED. GREEN (Thomas Laxton WR) 3 = DARK GREEN (Alderman) 4 = OTHER (Specify)

[ ] Wax: 1 = NONE 2 = LIGHT 3 = MEDIUM 4 = HEAVY [ ] 1 = NOT MARBLED 2 = MARBLED (Alaska)

[ ] Number of leaflet pairs: 1 = NOT PAIRED 2 = ONE 3 = TWO 4 = THREE OR MORE

6. STIPULES:

[2] 1 = LACKING 2 = PRESENT [ ] 1 = NOT CLASPING 2 = CLASPING

[2] 1 = NOT MARBLED 2 = MARBLED [ ] Size (Compared with leaflets): 1 = SMALLER 2 = SAME 3 = LARGER

[ ] Color (Compared with leaflets): 1 = LIGHTER 2 = SAME 3 = DARKER

7. FLOWER COLOR:

[ ] VENATION [1] STANDARD [1] WING [1] KEEL 1 = WHITE 2 = GREENISH 3 = LAVENDER 4 = PURPLE 5 = RED 6 = OTHER (Specify) _____

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8. PODS:

[2] Shape: 1 = STRAIGHT 2 = SLIGHTLY CURVED 3 = CURVED

[2] End: 1 = POINTED (Alderman) 2 = BLUNT (Alaska)

[2] Color: 1 = LIGHT GREEN (Alaska WR) 2 = MEDIUM GREEN 3 = DARK GREEN (Alderman) 4 = OTHER (Specify) _____

[1] Surface: 1 = SMOOTH 2 = ROUGH

[2] Surface: 1 = SHINY 2 = DULL

[2] Borne: 1 = SINGLE 2 = DOUBLE 3 = SINGLE AND DOUBLE 4 = SINGLE, DOUBLE, & TRIPEE 5 = DOUBLE & TRIPLE 6 = TRIPLE 7 = OTHER (Specify) _____

[7] CM. LENGTH

[1 6] MM. WIDTH (Between sutures)

[8] NO. SEEDS PER POD

9. SEEDS (95–100 Tenderometer):

[ ] Color: 1 = LIGHT GREEN 2 = GREEN 3 = DARK GREEN 4 = OTHER (Specify) _____

Seive: %

1	2	3	4	5	6	7	8	AVERAGE
[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]

SEEDS (Dry, Mature):

[4] Shape: 1 = FLATTENED 2 = ANGULAR 3 = OVAL 4 = ROUNDED

[1] Surface: 1 = SMOOTH 2 = DIMPLED 3 = WRINKLED

[ ] Surface: 1 = SHINY 2 = DULL

[1] Color Pattern: 1 = MONOCOLOR 2 = MOTTLED 3 = STRIPED 4 = DOTTED

[7] Primary Color:

[ ] Secondary Color:

1 = CREAMY–WHITE 2 = CREAM & GREEN 3 = LIGHT GREEN 4 = MEDIUM GREEN 5 = DARK GREEN 6 = BLUE–GREEN 7 = YELLOW 8 = BROWN 9 = RED 10 = GRAY 11 = BLACK

[1] Hilum Floor Color: 1 = WHITE 2 = TAN 3 = BLACK

[2] Cotyledon Color: 1 = GREEN 2 = YELLOW 3 = ORANGE

[2 3] GRAMS PER 100 SEEDS

10. DISEASE: (0 = Not Tested; 1 = Susceptible; 2 = Resistant)

[0] FUSARIUM WILT

[0] ASCOCHYTA BLIGHT

[0] MOSAIC

[0] OTHER (Specify) _____

[0] NEAR–WILT

[2] POWDERY MILDEW

[0] PEA ENATION MOSAIC

[0] DOWNY MILDEW

[0] BACTERIAL BLIGHT

[0] YELLOW BEAN MOSAIC

11. INSECT: (0= Not Tested; 1 = Susceptible; 2 = Resistant)

[ ] APHIDS

[ ] OTHER (Specify) _____

12. INDICATE WHICH VARIETY MOST CLOSELY RESEMBLES THAT SUBMITTED

CHARACTER	NAME OF VARIETY	CHARACTER	NAME OF VARIETY
Leafiness	MAJORET	Fresh Seed Color	
Leaf Color		Mature Seed Color	CARNEVAL
Pod Color	CARNEVAL	Seed Shape	
Pod Shape	CARNEVAL	Plant Habit	

COMMENTS:

FORM LMGS-470-14 (3-83) Reverse

7

EXHIBIT D.
20010016 9

TABLE OF CONTENTS

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A. ABOUT THE OBJECTIVE DESCRIPTION FORM

This objective description form is designed as an aid for the identification of field pea varieties to provide sufficient information for pedigreed seed crop inspection and variety verification purposes. Companion documents include the "Variety Registration Application Form" and the "Procedures for the Registration of Crop Varieties in Canada", both of which are available from the Variety Registration Office.

This objective description form lists characteristics to be used as the basis for developing the description of field pea varieties. It is recommended that the form be completed in as much detail as possible to ensure that an accurate description of the variety be on record. Uniformity and stability must be sufficient to ensure that the genetic purity of the variety has not been compromised during the development of the variety or during the seed multiplication process. However, accurate information on variability within the variety is essential for distinguishing between variants and off-types during the seed multiplication process.

Information on this document may be accessible or protected as required under the provisions of the *Access to Information Act.* Information that could cause you or your organization injury if released is protected from disclosure as defined in Section 20 of the *Access to Information Act.*

B. TEST GUIDELINES

1. The candidate variety **must** be described for all characteristics designated on the form with the pound symbol (#).

2. A rating system of 1-9 provides a scale for describing most characteristics in this form. To rate characteristics, select a value that best corresponds to the state indicated. Characteristics may be rated with intermediate values where the characteristic grades gradually from one extreme to another. For example, where the states for a characteristic are described as: small (3), medium (5), large (7); other values of 1, 2, 4, 6, 8 or 9 may be selected.

3. Each characteristic on this form has been arranged in a tabular format allowing the candidate variety (CV) and up to four reference/check varieties (Rl to R4) to be described. Information on reference varieties is useful but **not** required for variety registration. The reference varieties must be registered for sale in Canada.

C. LEGEND

(#) Characteristics that must always be included when completing the objective description form for variety registration, except when the sate of expression of a preceding characteristic renders this impossible.

(+) Indicates an illustration or method for this trait is in the appendix.

CV Candidate variety

RI - R4 Reference or check varieties: SW 975539 (SW MIDAS)

RI _**Carneval**_____ **R3** _____

R2 __**Majoret**_____ **R4** _____

D. PEA OBJECTIVE DESCRIPTION

Applicant (name and address):
Svalof Weibull Ltd.
2-411 Downey Rd.
Saskatoon, SK
S7N 4L8

Telephone: **(306) 477-5230** Fax: **(306) 477-5239**

1.0 CLASSIFICATION (#)

1.1 Botanical name: *Pisum sativum* L.

1.2 Type:

☐ 1. Field - green
☒ 2. Field - yellow

1.2 Proposed variety denomination (name): **SW MIDAS**

2.0 PLANT CHARACTERISTICS

2.1 Plant: growth habit

(#)		CV	R1	R2	R3	R4
Determined (bush type)	1	9	9	9		
Indeterminate (tall type)	9					

2.2 Plant: height (observe when 30% of plants have one flower open)

(#)						
Short (< 25 cm)	3	7	7	7		
Medium (25-50 cm)	5					
Tall (> 50 cm)	7					

2.3 Plant: foliage colour (observe at flowering)

Yellow green	1	2	2	2		
Green	2					
Blue or dark green	3					

3.0 STEM CHARACTERISTICS

3.1 Stem: fasciation

(+)						
Absent	1	1	1	1		
Present	9					

3.2 Stem: vine length (observe after flowering when pods are fully swollen)

(*) (+)		CV	R1	R2	R3	R4
Short (50 – 70 cm)	3	**4**	**5**	**4**		
Medium (90 – 115 cm)	5					
Long (130 – 150 cm)	7					

3.3 Stem: number of nodes up to and including first flowering node (observe at harvest, include the two scale nodes)

(+)						
Few	3	**15**	**14**	**14**		
Medium	5					
Many	7					

3.4 Shape of internodes

Straight	1	**1**	**1**	**1**		
Curved	9					

4.0 LEAF CHARACTERISTICS

4.1 Leaf: presence of leaflets

(*)						
Leafed	1	**2**	**2**	**2**		
Semi-leafless	2					
Leafless	3					

4.2 Leaf: average maximum number of leaflets (observe any time after stipules at seventh node are fully opened)

(+)						
Four	1					
Six	2					
Eight	3					

4.3 Leaf: size (observe at second fertile node)

Small	3					
Medium	5					
Large	7					

4.4 Leaf: shape (observe at second fertile node)

Elliptic	1					
Ovate	9					

4.5 Leaf: waxiness of leaves and stipules

Absent	1					
Present	9					

4.6 Leaf: dentation (observe over whole plant)
(*)

		CV	R1	R2	R3	R4
Absent	1					
Present	9					

4.7 Leaf: degree of dentation
(+)

Very weak	1					
Weak	3					
Medium	5					
Strong	7					
Very strong	9					

4.8 Leaf: apex of leaflet

Pointed	3					
Rounded	5					
Truncate	7					
Retuse	9					

5.0 STIPULE CHARACTERISTICS

5.1 Stipule: development (observe any time after stipules at seventh node are fully opened)
(*) (+)

Rudimentary	1	**2**	**2**	**2**		
Normal	2					

5.2 Stipule: size
(+)

Small	3	**4**	**4**	**5**		
Medium	5					
Large	7					

5.3 Stipule: shape

Elliptic	1					
Broadly elliptic	9					

5.4 Stipule: colouration

Absent	1	1	1	1		
Present	9					

5.5 Stipule: marbling (before flowering, on 2 nodes below the first fertile node)
(#)(+)

Absent	1	**9**	**9**	**9**		
Present	9					

12

12

5.6 Stipule: maximum density of marbling

(#)(+)		CV	R1	R2	R3	R4
Very sparse	1	**5**	**5**	**3**		
Sparse	3					
Medium	5					
Dense	7					
Very dense	9					

6.0 FLOWERING CHARACTERISTICS

6.1 Time of flowering (observe when approximately 30% of plants have one flower open, avoid recording early flowering variants)

(#)						
Early	3	**4**	**4**	**4**		
Medium	5					
Late	7					

6.2 Maximum number of flowers per node (non-fasciated varieties only, observe when highest nodes show signs of producing flowers which do not develop beyond the bud stage)

One	1	**3**	**3**	**3**		
One to two	2					
Two	3					
Two to three	4					
Three	5					
Three to four	6					
More than four	7					

6.3 Flower: colour of wing

(#)						
White	1	**1**	**1**	**1**		
Greenish	2					
Pink	3					
Purple	4					
Dark red	5					
Other: _____	6					

6.4 Flower: shape of wing

(#)						
Round	1	**1**	**1**	**1**		
Notched	9					

6.5 Flower: colour of standard

(#)						
White	1	**1**	**1**	**1**		
Greenish	2					
Pink	3					
Reddish purple	4					
Other: _____	5					

6.6 Flower: size of standard

		CV	R1	R2	R3	R4
Small	3	**4**	**4**	**5**		
Medium	5					
Large	7					

6.7 Flower: shape of base of standard
(#)(+)

Raised (V-shaped)	3	**7**	**9**	**7**		
Level (straight)	5					
Arched (2 lobes)	7					
Strongly arched	9					

6.8 Flower: apex of calyx lobe (observe at second flowering node)

Acuminate	1	**2**	**2**	**2**		
Pointed	2					
Rounded	3					

7.0 POD CHARACTERISTICS

7.1 Pod: length (observe at first flowering node)
(#)

Short	3	**5**	**5**	**5**		
Medium	5					
Long	7					

7.2 Pod: width (observe at first flowering node)
(#)

Narrow	3	**5**	**5**	**5**		
Medium	5					
Broad	7					

7.3 Pod: parchment (observe when pods are dry and papery)
(#)(+)

Absent or partially present	1	**9**	**9**	**9**		
Entirely present	9					

7.4 Pod: curvature (observe when pods fully swollen)
(#)

Absent	1	**3**	**3**	**3**		
Weak	3					
Medium	5					
Strong	7					
Very strong	9					

7.5 Pod: type of curvature (observe when pods are fully swollen)
(+)

Towards ventral part	1	**concave**	**concave**	**concave**		
Straight	2					
Towards dorsal part	3					

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7.6 Pod: shape of distal part (observe when pods fully swollen)

(+)		CV	R1	R2	R3	R4
Pointed	1	**9**	**9**	**1**		
Blunt	9					

7.7 Pod: colour (observe when pods fully swollen)

(#) (+)						
Yellow	1	**2**	**2**	**2**		
Green	2					
Blue green	3					
Purple	4					
Other: _____	5					

7.8 Pod: number of ovules/seeds (observe at second fertile node when ovules/seeds are partially developed)

Few	3	**5**	**5**	**5**		
Medium	5					
Many	7					

7.9 Pod: colour of immature seed (observe when seed is firm, before starchy to taste)

(#)						
Light green	1	**1**	**1**	**1**		
Dark blue-green	9					

8.0 SEED CHARACTERISTICS: **(+)** (observe dry seed)

8.1 Seed: shape of starch grain

(+)						
Simple	1	**1**	**1**	**1**		
Compound	9					

8.2 Seed: colour of cotyledon

(#) (+)						
Green	1	**2**	**2**	**1**		
Yellow	2					
Red	3					

8.3 Seed: black colour of hilum

(#) (+)						
Absent	1	**1**	**1**	**1**		
Present	9					

8.4 Seed: shape

(#) (+)						
Spherical	1	**1**	**1**	**1**		
Irregular	9					

8.5 Seed: wrinkling of cotyledon
(+)

Absent	1	**1**	**1**	**1**		
Present	9					

8.6 Seed: size
(#) (+)

		CV	**R1**	**R2**	**R3**	**R4**
Small	3	**5**	**4**	**6**		
Medium	5					
Large	7					

8.7 Seed: weight (grams per 1000 seed)
(#)

Weight in grams	235	220	260		

8.8 Time of maturity (observe hard, dry seed)
(#)

Early	3	**4**	**4**	**5**		
Medium	5					
Late	7					

9.0 QUALITY CHARACTERISTICS

9.1 Protein content
(#)

Percentage	23	21	21.5		

9.2 Cooking quality (describe) eg. Colour, granulation, viscosity

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10.0 REACTION TO DISEASES

0 - not tested
1 - resistant
3 - moderately resistant
5 - moderately susceptible
7 - susceptible
9 - highly susceptible

		CV	R1	R2	R3	R4
10.1	Seedling blight, root rot and wilt *Aphanomyces euteiches* *Fusarium oxysporum* f.sp. *pisi* *Fusarium* spp. *Pythium* spp.	7	7	7		
10.2 (#)	Mycosphaerella blight and ascochyta foot rot *Mycosphaerella pinodes* *Phoma medicaginis* var. *Pinodella*	**7**	7	7		
10.3	Ascochyta leaf and pod spot *Ascochyta pisi*	7	7	7		
10.4	Downy mildew *Peronospora viciae*	0	0	0		
10.5 (#)	Powdery mildew *Erysiphe polygoni*	**1**	3	7		
10.6	Bacterial blight *Pseudomonas syringae* pv. *pisi*	0	0	0		
10.7	Bean yellow mosaic virus	0	0	0		
10.8	Septoria leaf blotch *Septoria pisi*	0	0	0		
10.9	Other (specify) _____ _____ _____					

11.0 Describe chemical characteristics that aid in the identification of the candidate variety, eg. electrophoresis. Please attach data and the corresponding protocol.

_____

_____

_____

_____

_____

12.0 (#) Describe any deviant plants, including both variants and off-types observed during seed increase of the candidate variety. The maximum allowable frequency of each variant for each class of pedigreed seed must be given.

NONE

13.0 List the characteristics that are the most useful for distinguishing the candidate variety. Refer to the characteristics using the objective description key numbers.

14.0 Additional characteristics:

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APPENDIX

METHODS AND ILLUSTRATIONS

3.1 Stem: fasciation

The expression of fasciation varies considerably with environmental conditions, although the presence or absence of fasciation is usually clear.

3.2 Stem: vine length

The observations should be made on harvested plants at mature green seed stage. The measurement should include nodes with scale leaves. Both plant height at flowering and stem length at mature green seed stage may vary with site and season due to different responses to day length, temperature and soil moisture. Both characteristics are good discriminators within years at one site, however, and allow the separation of different varieties.

3.3 Stem: number of nodes up to and including the first flowering node

The expression can vary due to flower abortion under certain environmental conditions. Nodes with scale leaves should be included.

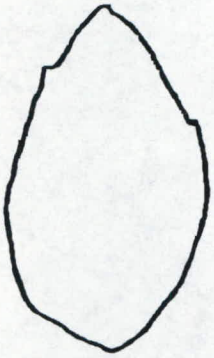
4.2 Leaf: average maximum number of leaflets

The maximum expression should be recorded over the whole plant. Although appearing to be continuously expressed, this characteristic is stable. Occasional plants may have a larger number of leaflets. The maximum number of leaflets for a sample of plants should be recorded and an average value calculated.

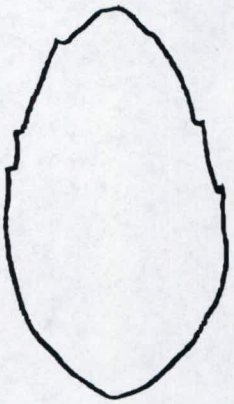
4.6 Leaf: dentation

The observations should be made over the whole plant, with the exception of the lowest six nodes and all aerial and basal branches.

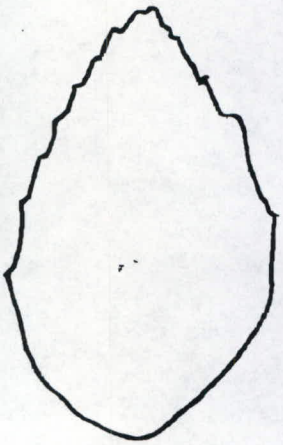
4.7 Leaf: degree of dentation



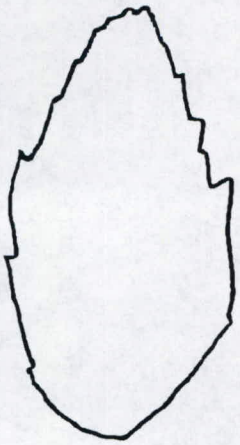
1 - very weak



3- weak



5 - medium



7 - strong

9 - very strong

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5.1 Stipule: development

Rudimentary stipules are lanceolate and surface area is reduced significantly by up to 80%. Plants with 'Rabbit-eared' stipules are not examples of rudimentary stipules.

5.2 Stipule: size

The observations should be made at the second fertile node on stipules which have been detached from the plant and flattened.

5.5 Stipule: marbling

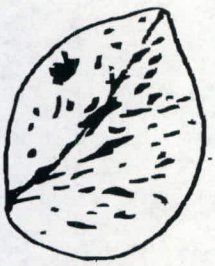
The observations should be made over the whole plant. Care has to be taken that foliage at the lowest nodes has not senesced before assessment. If assessed before flowering, the plant should have at least eight nodes, since flecking in some varieties may not be expressed at lower nodes.

5.6 Stipule: maximum density of marbling

The observations should be made over the whole plant.

1 - very sparse

3 - sparse



5 - medium

7 - dense

9 - very dense

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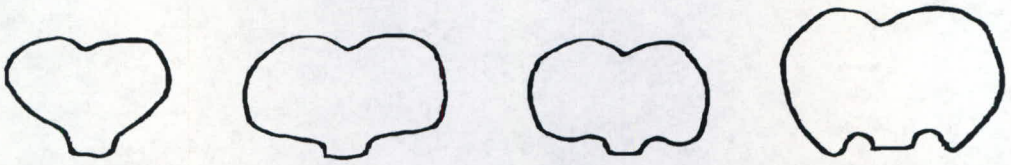
6.7 Flower: shape of base of standard

The observations should be made on a sample from different plants. The standard should be detached and flattened on a hard surface and compared with example varieties before assigning a state.



3 - raised (V-shaped) | 5 - level (straight) | 7 -arched (2 lobes) | 9 - strongly arched

7.3 Pod: parchment

(1) The observation should be made on a sample from different plants when the pods are dry and papery.

(2) The pod should be opened along the suture without damaging the edges of the two valves. The distribution of sclerenchyma, which makes up the parchment, may either be observed by staining with Phoroglucinol in Hydrochloric Acid, or by reflecting light (preferably daylight) on the inside of the pod wall.

If parchment for any pod is difficult to determine, pods from other nodes on the same plant should be examined.

7.5 Pod: type of curvature

The observations should be made on the upper suture on a sample of plants. The maximum expression over the whole plant should be assessed. The 'hook end' on long podded types should be ignored when assessing curvature.

7.6 Pod: shape of distal part

The observations should be made only on varieties without thickened pod wall. They should be made on a sample of plants and on several nodes of each plant when pods are fully developed, but before any senescence. Care should be taken where pods are strongly curved, where the beak is longer than the pod tip, or where parchment is not entire. Some varieties have a blunt tip which is rounded, but the beak is higher up the pod.

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7.7 Pod: colour

(1) Each state should be treated separately.

(2) Varieties with yellow pods may also have yellowish peduncles and sepals. In the presence of anthocyanin, colouration of the pods will appear red.

(3) The appearance of green pods is the result of yellow, purple and blue-green colours not being expressed.

(4) Blue-green pods are dark and slightly bluish, but not as blue as blue-green foliage. The colour develops with time and may be more accentuated in hotter, drier conditions.

(5) The expression of purple pods can be variable and unstable, disappearing on the same plant or being reduced in its distribution on the pod.

8.0 DRY SEED CHARACTERISTICS

The provided seed should be mature and preferably not severely bleached, the assessment should be carried out within nine months after harvest. For varieties with anthocyanin pigment, tannins in the testa often darken with age, (usually after nine months) obscuring many characteristics. The observation is most clear under conditions of bright natural light; the assessment of some characteristics is difficult under artificial light.

8.1 Seed: shape of starch grain

(1) After removing the testa, fine fragments of tissue should be extracted from the cotyledon and examined after having added water and been squashed gently between two microscope slides. Too much pressure during squashing results in fragmentation of the grains, too little pressure will not provide a layer thin enough for easy examination. This works best on pea flour (finely ground pea seed).

(2) A microscope with transmitted light, using x16 eye-pieces and either x10 or x40 objectives, is most suitable for examination. For examination of compound grains, the larger objectives will be required.

(3) Simple grains resemble wheat seeds or coffee beans in shape, often with what looks like a suture line running along their length.

(4) Compound grains look irregularly star-shaped and appear to be made of a number of segments. The center of the grains may appear cross-shaped. Too much pressure during squashing causes fragmentation.

8.2 Seed: colour of cotyledon

The expression varies with environmental conditions:

(i) bleaching, caused by sunlight or chemical changes in the plant, can remove colour from both green and yellow cotyledon seeds;

(ii) colour becomes dull with age, even if seed is stored in cold, dark conditions;

(iii) colour can darken in the presence of high amounts of Tragacanth oil occurring on the underside of the testa. This fades as the seed ages.

There is a range of colour from yellow to orange yellow and from pale to dark green.

8.3 Seed: black colour of hilum

(1) The hilum colour can be influenced by the presence of tannin in the testa. If any loose tissue is present, the hilum area should be lightly polished with a cloth before recording,.

(2) Spontaneous mutation from melanin absent to melanin present can occur. This appears to be more prevalent in colored flowered types. The mutation rate is unknown.

8.4 Seed: shape

The shape can be influenced by environmental conditions, although it is generally consistent from year to year, provided the seed has reached its full development.

8.5 Seed: wrinkling of cotyledon

The observations should be made on harvested seed. 'Golf ball' and large dimples should be ignored as these can also be found on smooth seeded (non-wrinkled) types. Cylindrically shaped seed types should be assessed carefully, because some are smooth seeded.

8.6 Seed: size

The observations should be made on harvested seed only. The weight varies markedly from site to site but can be useful as a discriminator, it varies to a lesser extent from season to season at one site. Immature and infected seeds should be excluded; the seed should be dry (approximately 10-15% moisture content) at time of recording.

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EXHIBIT E
STATEMENT OF THE BASIS OF OWNERSHIP

The following statements are made in accordance with the Privacy Act of 1974 (5 U.S.C. 552a) and the Paperwork Reduction Act (PRA) of 1995.

Application is required in order to determine if a plant variety protection certificate is to be issued (7 U.S.C. 2421). Information is held confidential until certificate is issued (7 U.S.C. 2426).

1. NAME OF APPLICANT(S)
SVALÖF WEIBULL AB

2. TEMPORARY DESIGNATION OR EXPERIMENTAL NUMBER
SW 975539

3. VARIETY NAME
SW MIDAS

4. ADDRESS *(Street and No., or R.F.D. No., City, State, and ZIP, and Country)*
S-268 81
SVALÖV, SWEDEN

5. TELEPHONE *(include area code)*
46-418-667000

6. FAX *(include area code)*
46-418-667100

7. PVPO NUMBER
200100169

8. Does the applicant own all rights to the variety? *Mark an "X" in appropriate block.* **If no, please explain.** ☒ YES ☐ NO

9. Is the applicant (individual or company) a U.S. national or U.S. based company? ☐ YES ☒ NO
If no, give name of country SWEDEN

10. Is the applicant the original owner? ☒ YES ☐ NO ***If no, please answer one of the following:***

a. If original rights to variety were owned by individual(s), is (are) the original owner(s) a U.S. national(s)?
☐ YES ☐ NO **If no, give name of country**

b. If original rights to variety were owned by a company(ies), is(are) the original owner(s) a U.S. based company?
☐ YES ☒ NO **If no, give name of country** SWEDEN

11. Additional explanation on ownership *(if needed, use reverse for extra space)*:

PLEASE NOTE:

Plant variety protection can be afforded only to owners (not licensees) who meet one of the following criteria:

1. If the rights to the variety are owned by the original breeder, that person must be a U.S. national, national of a UPOV member country, or national of a country which affords similar protection to nationals of the U.S. for the same genus and species.

2. If the rights to the variety are owned by the company which employed the original breeder(s), the company must be U.S. based, owned by nationals of a UPOV member country, or owned by nationals of a country which affords similar protection to nationals of the U.S. for the same genus and species.

3. If the applicant is an owner who is not the original owner, both the original owner and the applicant must meet one of the above criteria.

The original breeder/owner may be the individual or company who directed final breeding. See Section 41(a)(2) of the Plant Variety Protection Act for definition.

STD-470-E (07-97) *(Destroy previous editions).*
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200100169

U.S. Plant Variety Protection Act - Authorization of an Agent

I hereby authorize Bonis & Company Ltd. to act, for all purposes of this Act, on behalf of me as my agent for the Field Pea Variety, **SW MIDAS**

Signature: Howard K. Love

Howard K. Love
Canadian Research Director
Svalof Weibull AB

Date: 2001-04-10

Address: 2-411 Downey Road
Saskatoon, Sask.
S7N 4L8
Canada

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